



Accelerating solutions for highway safety, renewal, reliability, and capacity

Regional Operations Forum

From Performance Measures to Performance Management

Tony Kratofil, PE

Metro Region Engineer, Michigan DOT

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

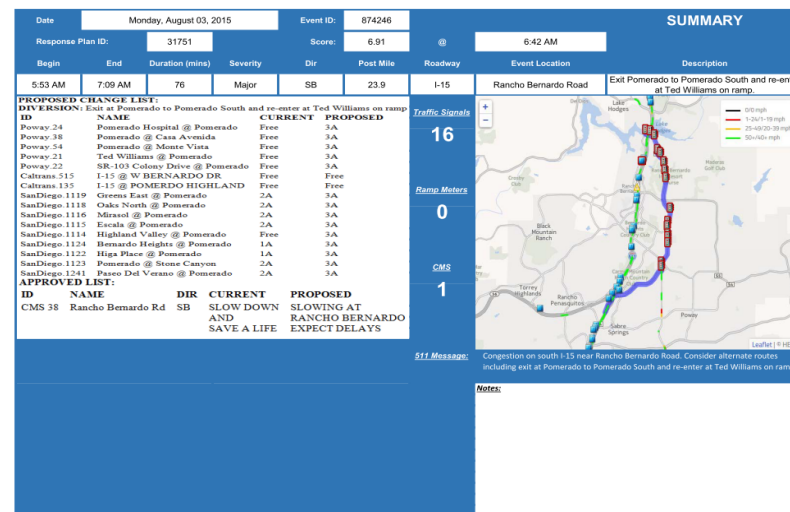
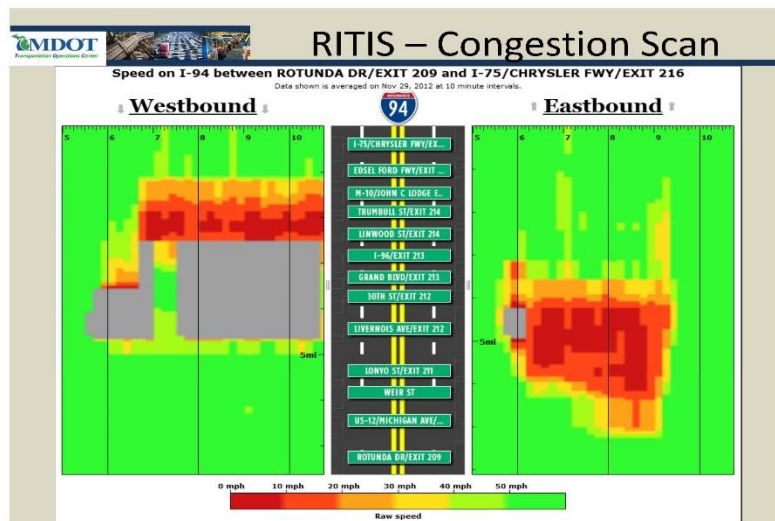
***“Vision without execution is
hallucination.”***

- Thomas A. Edison,
American inventor, scientist and entrepreneur
(1847-1931)

***“Discipline is the bridge between
goals and accomplishment.”***

- Jim Rohn,
American entrepreneur, author and motivational speaker
(1930-2009)

Measurement vs. Management



Characteristics

Backward Looking (What Happened)

Forward Looking (Forecast)

Passive

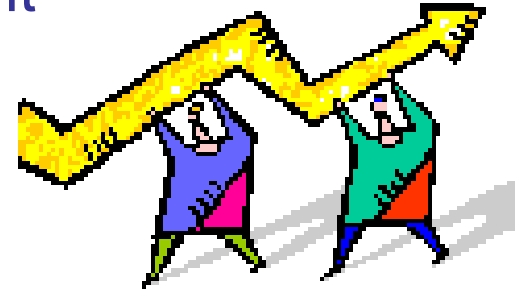
Active

Insightful for Strategy

Supports Tactical Decisions

Purpose of Performance Management

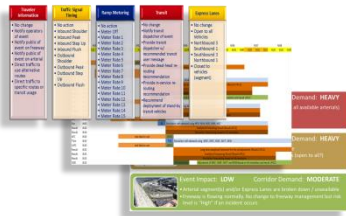
- Using Performance Measures that:
 1. Facilitate Performance Management
 2. Drive Performance Improvement
- Desired Outcomes:
 1. Improving Travel Reliability & Traffic Flow (System)
 2. Driving Cultural and Behavior Changes to Actively & Proactively Operate the System (Organization)



Finance Management for the Tactical Decision Support for ICM

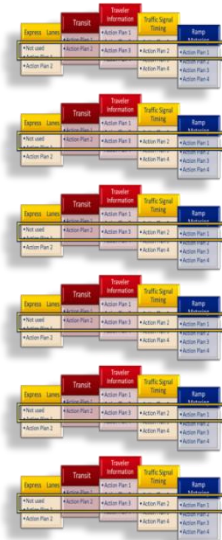
Inventory + Prediction

1



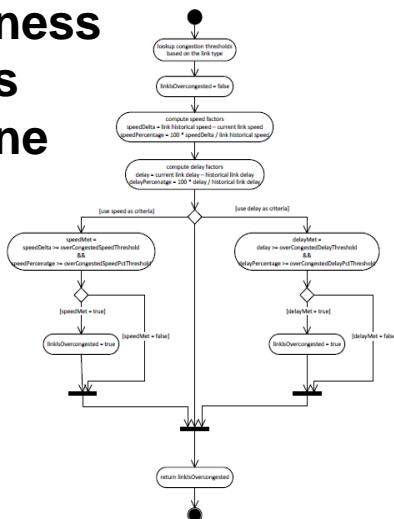
Event Response Suite

3

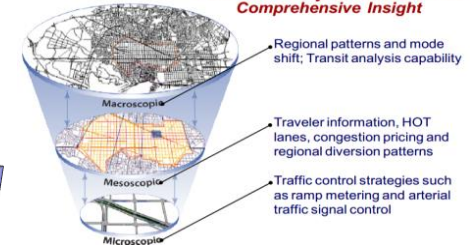


Business Rules Engine

2



Multi-level Analysis Tools Provide Comprehensive Insight



4

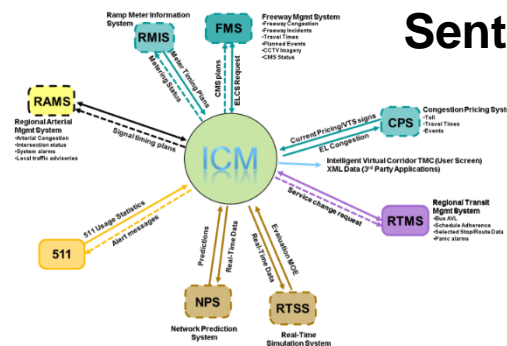
Corridor MOE

5

{0.00, -13.28, 11.14, 1.19, 7.81, 2.2}

**Response
Plan
Sent to Field**

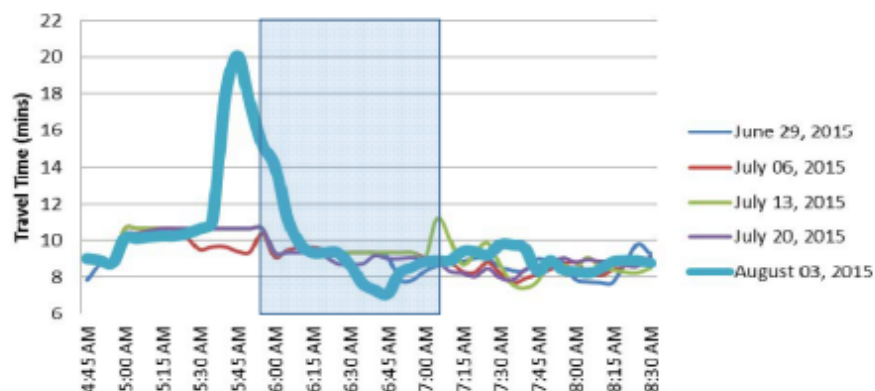
6



Date	Monday, August 03, 2015		Event ID:	874246		PERFORMANCE			
Response Plan ID:	31751		Score:	6.91		@	6:42 AM		
Begin	End	Duration (mins)	Severity	Dir	Post Mile	Roadway	Event Location	Description	
5:53 AM	7:09 AM	76	Major	SB	9:36 PM	I-15	Rancho Bernardo Road	Exit Pomerado to Pomerado South and re-enter at Ted Williams on ramp.	

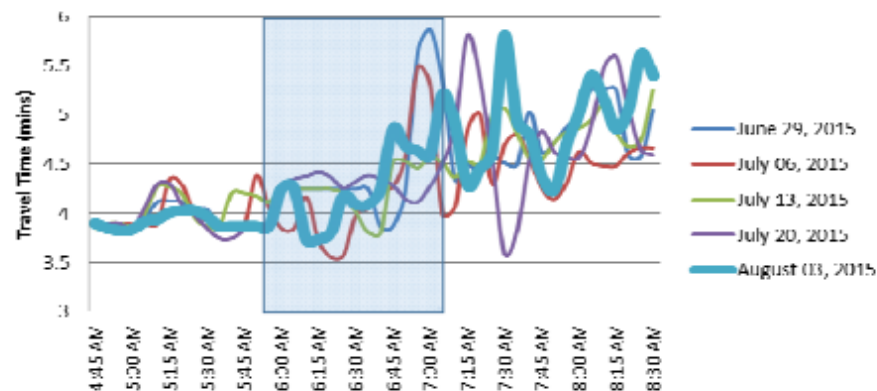
Alternate Route Travel Time:

TT SB Pomerado @I-15/Ted Williams Fwy



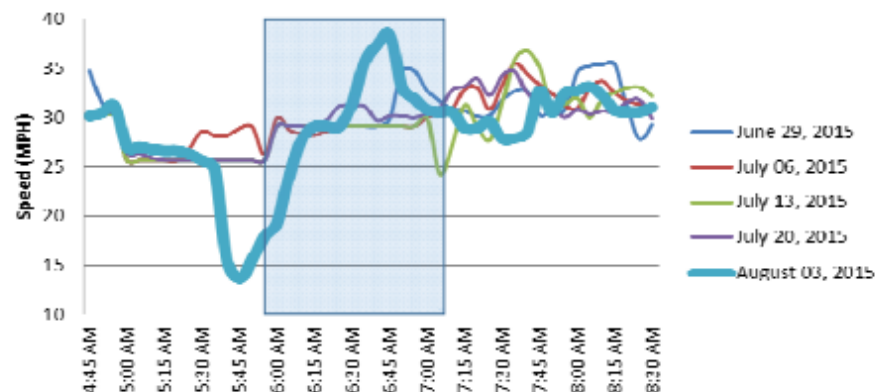
Alternate Route Travel Time:

TT WB Ted Williams @Pomerado/I-15



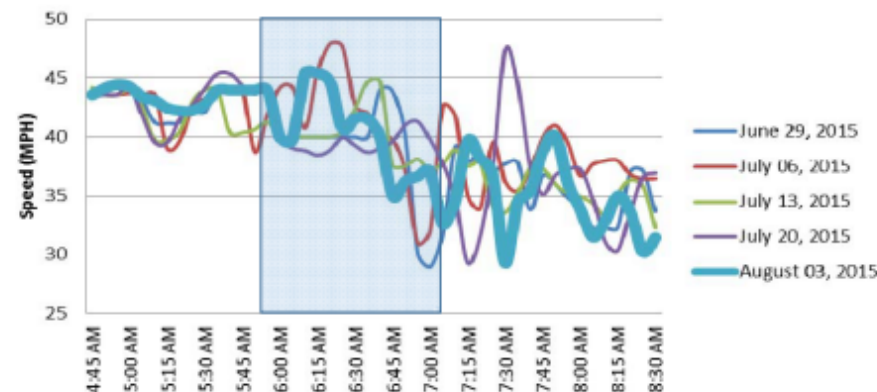
Alternate Route Speed:

Speed SB Pomerado @I-15/Ted Williams Fwy

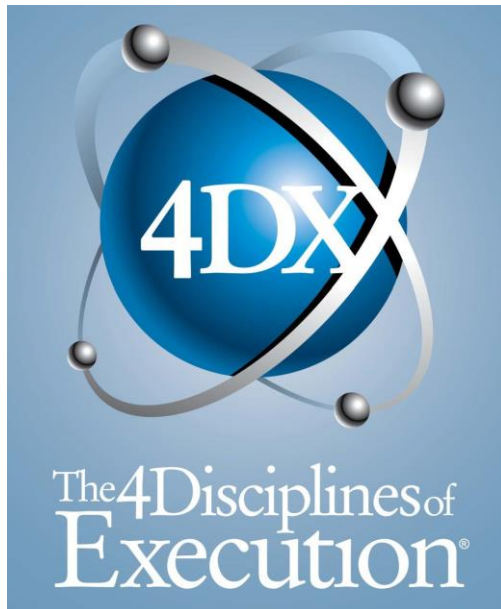


Alternate Route Speed:

Speed WB Ted Williams @Pomerado/I-15



Performance Management for Organizational Cultural & Behavioral Change



1. Focus on the “Wildly Important”
WIG = X to Y by WHEN
2. Act on the Lead Measures
3. Keep a Compelling Players’
Scoreboard
4. Create a Cadence of
Accountability

Discipline 1: Focus on the Wildly Important

Incremental



80% of activities produce 20% of results

Transformational



20% of activities produce 80% of results

Lags and Leads

- LAG Measures
 - Measures something that has already happened (can't do anything about it now).
 - Typically represents the end result we want to see.
- LEAD Measures
 - Measures something we can act on in the future.
 - A good LEAD has the right cause-effect relationship on the LAG.
 - Typically reflects a behavior we want to turn into a habit, institutionalize.

Lags and Leads

Examples:

- GOAL: I want to lose weight.
 - LAG:
 - Decrease my weight from (X) 200 lbs to (Y) 180 lbs by (WHEN) December 31, 2015.
 - LEADS:
 - Diet: Limit my caloric intake to 2000 calories/day, 90% of the time.
 - Exercise: Jog 30 minutes a day, 90% of the time.

User Delay Cost



- Traditional project level taken to system level
 - Calculation based on travel volumes, speeds
 - Sensor and probe vehicle data
- Performance measurement tool evolution
 - “Red Images” and OpsTracker in 2011 & 2012
 - Regional Integrated Transportation Information System (RITIS) in 2013

What PM to Use – TTR or UDC?

Travel Time Reliability	User Delay Cost
More Complex “Index”	Tangible, Relatable Unit of Measure
Good for Long Term Trends, Strategy; Loses Meaning at Hourly Increments	Real Time, Up to the Minute
Not as Reflective of Volume, Location, and Time of Day Impacts	Accounts Well for Variation in Volume, Location & Time of Day Impacts
Difficult to Tie Tactical Actions to Outcomes	Actionable: Allows for Proactive & Active Management that Connect Tactical Actions to Results

Managing UDC with 4DX

WIG: Limit 2013 User Delay Cost to \$304.4 Million by 12/31/13 (Represents a 10% Improvement from 2012)

Winter Weather Lag:

Regain Time < 2 hours
80% of time

Lead 1:

Perform After Storm
Huddles 80% of the
time

Lead 2:

Compliance with
Salting Policies 80%
of the time

TIM Lag:

Limit 1+ Lane Closure
2+ hour Incidents to 203

Lead 1:

Perform Post Incident
Reviews 50% of the
time

Work Zone Lag:

Limit Non-Recurring
Construction UDC to
\$80.3M

Lead 1:

Perform WZ Reviews
80% of the time

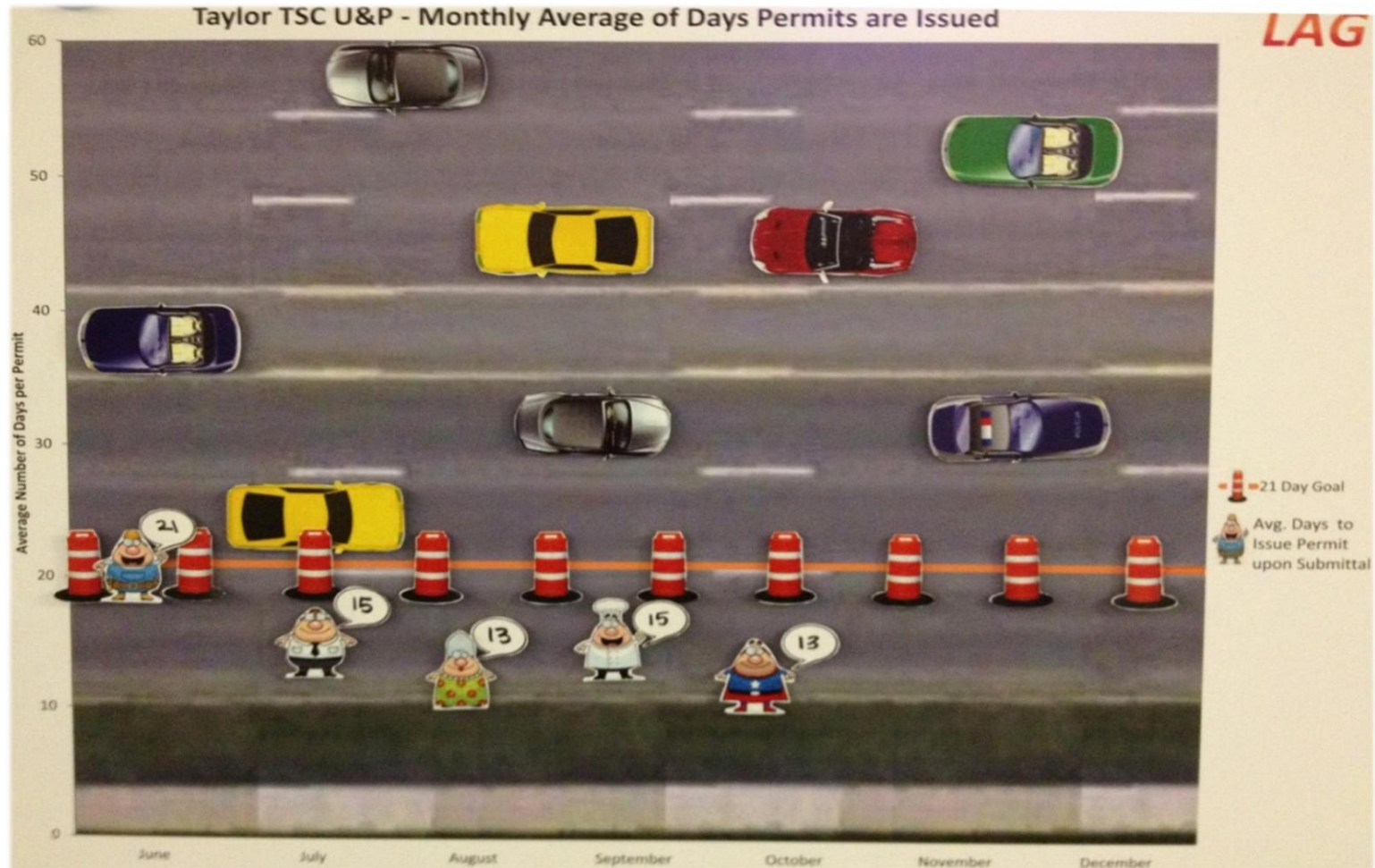
Lead 2:

Compare Predicted
vs. Actual UDC

Compelling Players Scoreboard



Compelling Players Scoreboard



Cadence of Accountability

Making the “Strategic” the “Urgent”

- Weekly (or bi-weekly, if you must)
 - Schedule small (15-30 minutes) blocks of time.
 - Same time, same day.
 - Create a habit, even when it’s hard to do.
- Deliberate Process
 - What’s the score (LAG and LEAD)
 - What did I commit to last week? (and did I do it?)
 - What do I commit to this week to move the needle?

Michigan's Implementation

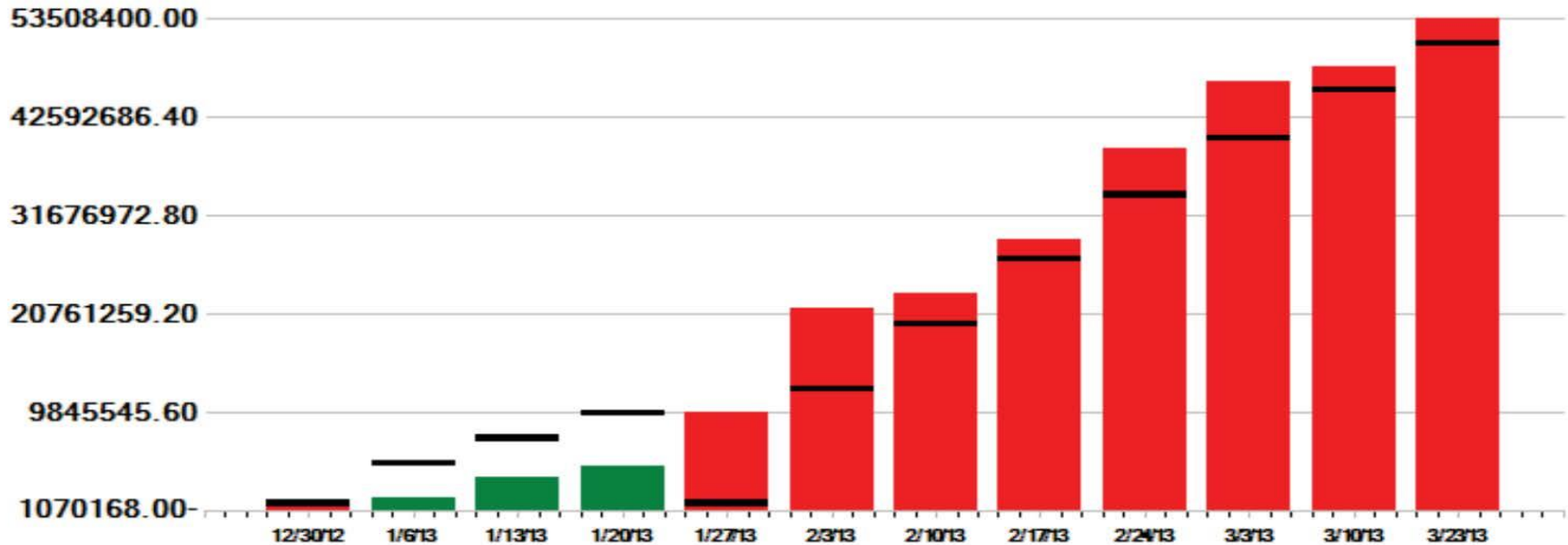
- 2011: I-94 Southwest Region
- 2012: I-94 Corridor-wide
 - 3 regions, 8 TSCs, and Central Office Operations Field Services office
- 2013: Statewide, multiple routes
 - Part of a larger adoption of 4DX to drive higher Customer Satisfaction
 - Mostly freeway, all 7 regions



Scoreboard for Team: Statewide

UDC Statewide

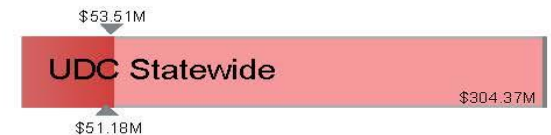
as of 3/23/2013: Current: \$53.51M / Target: \$51.18M



Limit the 2013 user delay cost to \$304.4 million, between 1/1/13 and 12/31/13.

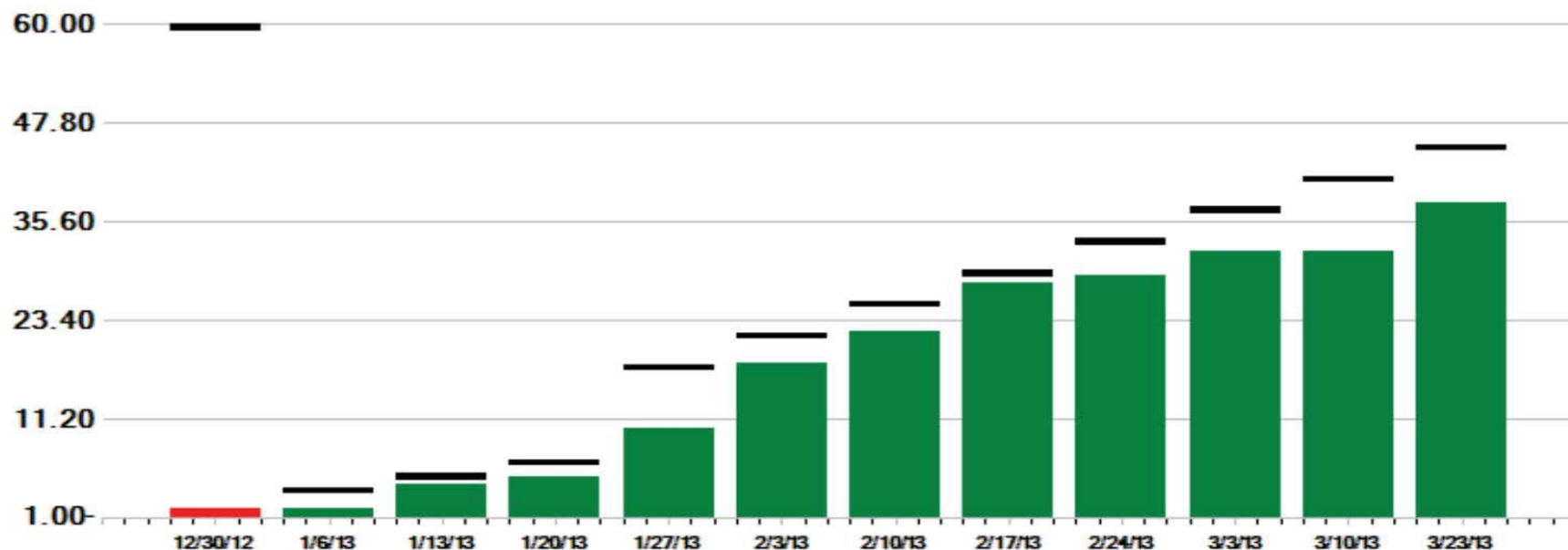


Red



Scoreboard for Team: Statewide Traffic Incident Management

as of 3/23/2013: Current: 38 / Target: 45.17



Limit the number of traffic incidents closing one or more lanes lasting longer than two hours to 203.



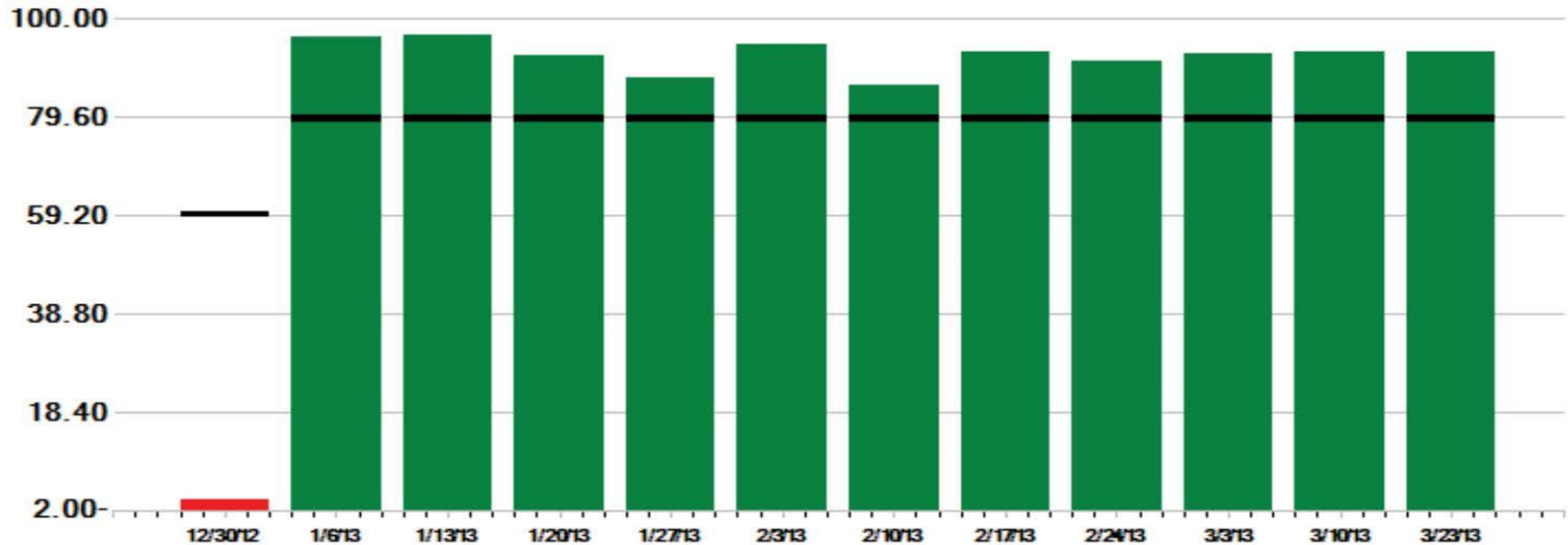
Green



Scoreboard for Team: Statewide

Weather Travel Impacts

as of 3/23/2013: Current: 93.15% / Target: 80%



Regain normal speeds in two hours or less, 80 percent of the time for winter weather events.



Green





RITIS – Congestion Scan

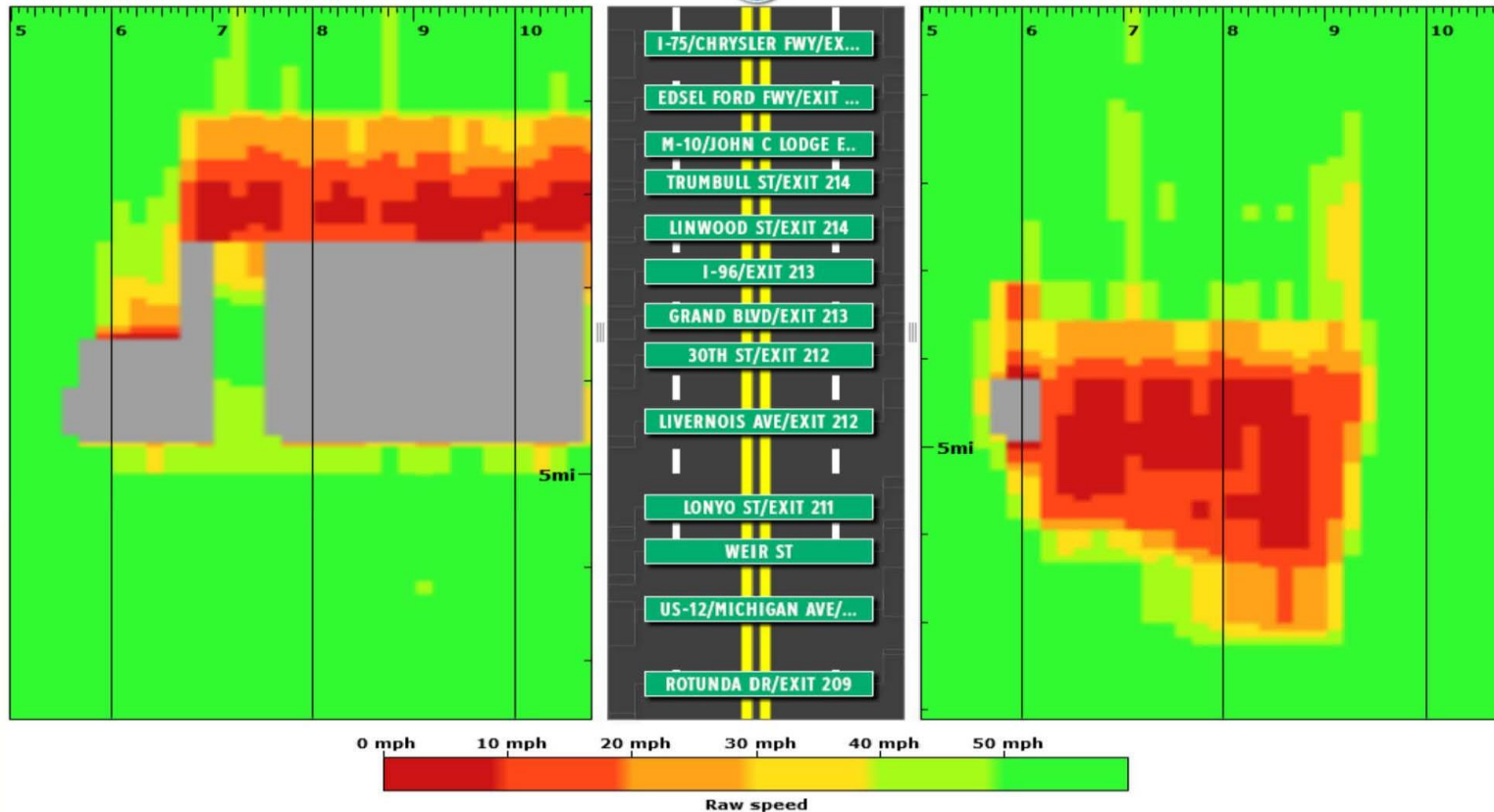
Speed on I-94 between ROTUNDA DR/EXIT 209 and I-75/CHRYSLER FWY/EXIT 216

Data shown is averaged on Nov 29, 2012 at 10 minute intervals.

↓ **Westbound** ↓



↑ **Eastbound** ↑



Outcomes

- Broad Front Line Staff Engagement
- Rapid Adoption of Best Practices, esp. TIM
- Active Response & Proactive Management of Work Zones, Traffic Incidents, Weather Events
- Better Transparency into Day to Day System Operations

Summary

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